

REMARKS

In response to the election requirement in the Office Action of October 9, 2002, Applicants hereby provisionally elects species IV under the condition that species I, as recited in claim 1 as amended herewith, is generic to species II, III and IV for reason stated below. Claims 31-53 and 55-56 are readable on elected species IV.


The present invention relates to a structure of a terminal for connecting a circuit comprising a TFT over a substrate to a circuit under another substrate, in particular, a contact structure comprising a connecting wiring formed from a lamination film comprising a metallic film and a transparent conductive film in contact with the metallic film, wherein a side surface of the metallic film is covered with an insulating film.

As a preliminary matter, Applicants believe that claim 54 should be included in species III since claim 54 depends on claim 19, which is included in Species III.

Claims 1-2, 4-6, 8-11, 13-14, 17-20, 22, 24-26, 28-29, 31-32, 34, 36-38, 40-41, 43, 45, 47-49 and 51-52 have been amended. The claims directed to species III and IV are amended to recite a side surface of the metallic film is covered with an insulting film **along the length direction and the width direction of a connecting wiring**. Further, Applicants believe that the limitations in claim 1 are included in claim 10 of species II. Therefore, Applicants respectfully submit that species I is generic to species II, III and IV by this amendment.

Examination on the merits is requested.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1-2, 4-6, 8-11, 13-14, 17-20, 22, 24-26, 28-29, 31-32, 34, 36-38, 40-41, 43, 45, 47-49 and 51-52 as follows:

1. (Amended) A contact structure comprising:
a first substrate;
a second substrate;
[for electrically connecting] a connecting wiring over [a] said first substrate [to
a wiring over another substrate by an anisotropic conductive film,] ;
a wiring under said second substrate; and
an anisotropic conductive film between the first substrate and the second
substrate,
wherein said connecting wiring over said substrate and said wiring under
said second substrate are electrically connected by said anisotropic conductive film,
wherein said connecting wiring is a lamination film comprising a metallic film
and a transparent conductive film in contact with said metallic film, and
wherein a side surface of said metallic film is covered with an insulating film
along the length direction and the width direction of said lamination film.
2. (Amended) A contact structure of claim 1 wherein the [protecting]
insulating film is a resin film.
4. (Amended) A contact structure of claim 1 wherein the metallic film
comprises [a metallic layer having Al as its principal constituent, or an alloy layer
containing] Al.
5. (Amended) A contact structure of claim 1 wherein the metallic film
comprises [a metallic layer having W as its principal constituent, or an alloy layer
containing] W.

6. (Amended) A contact structure of claim 1 wherein the metallic film is a lamination film formed of a W layer and [an alloy] a layer [containing] comprising W and N.

8. (Amended) A contact structure of claim 1 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide.

9. (Amended) A contact structure of claim 1 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide and indium oxide.

10. (Amended) A contact structure comprising:

a first substrate;

a second substrate;

[for electrically connecting] a connecting wiring over [a] said first substrate [to a wiring over another substrate by at least one grain plated with at least one of gold and chromium in an anisotropic conductive film,] ;

a wiring under the second substrate;

an anisotropic conductive film comprising a grain plated with at least one material selected from the group consisting of chromium and gold; and

wherein said connecting wiring over said substrate and said wiring under said second substrate are electrically connected by said anisotropic conductive film,

wherein said connecting wiring is a lamination film comprising a metallic film and a transparent conductive film in contact with said metallic film,

wherein a side surface of said metallic film is covered with an insulating film along the length direction and the width direction of said lamination film, and

wherein said metallic film is not in contact with said grain in said anisotropic conductive film.

11. (Amended) A contact structure of claim 10 wherein the [protecting] insulating film is a resin film.

13. (Amended) A contact structure of claim 10 wherein the metallic film comprises [a metallic layer having Al as its principal constituent, or an alloy a layer containing] Al.

14. (Amended) A contact structure of claim 10 wherein the metallic film comprises [a metallic layer having W as its principal constituent, or an alloy layer containing] W.

17. (Amended) A contact structure of claim 10 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide.

18. (Amended) A contact structure of claim 10 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide and indium oxide.

19. (Amended) A semiconductor device comprising:
a circuit comprising a thin film transistor over a substrate; and
a connecting wiring over said substrate for connecting said circuit to another circuit,
wherein said connecting wiring is a lamination film comprising a metallic film and a transparent conductive film in contact with said metallic film,
wherein a side surface of said metallic film is covered with an insulating film along the length direction and the width direction of said lamination film, and
wherein said lamination film has a taper shape.

20. (Amended) A semiconductor device of claim 19 wherein the [protecting] insulating film is formed [of] from the same materials as that of an insulating film between a gate wiring and a source wiring of the thin film transistor.

22. (Amended) A semiconductor device of claim 19 wherein the [protecting] insulating film is a resin film.

24. (Amended) A contact structure of claim 19 wherein the metallic film comprises [a metallic layer having Al as its principal constituent, or an alloy a layer containing] Al.

25. (Amended) A contact structure of claim 19 wherein the metallic film comprises [a metallic layer having W as its principal constituent, or an alloy layer containing] W.

26. (Amended) A semiconductor device of claim 19 wherein the metallic film is a lamination film formed of a W layer, and [an alloy] a layer [containing] comprising W and N.

28. (Amended) A contact structure of claim 19 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide.

29. (Amended) A contact structure of claim 19 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide and indium oxide.

31. (Amended) A semiconductor device comprising:
a first substrate comprising a circuit comprising a thin film transistor;
a second substrate opposing said first substrate;
a connecting wiring comprising a metallic film and a transparent conductive film in contact with said metallic film for connecting said circuit to another circuit; and
an insulating film in contact with a side surface of said metallic film,
wherein said connecting wiring and said insulating film are formed over said first substrate,
wherein said insulating film is formed along with the length direction and the width direction of said lamination film, and
wherein said connecting wiring has a taper shape.

32. (Amended) A semiconductor device of claim 31 wherein the [protecting] insulating film is formed of the same materials as that of an insulating film between a gate wiring and a source wiring of the thin film transistor.

34. (Amended) A semiconductor device of claim 31 wherein the [protecting] insulating film is a resin film.

36. (Amended) A contact structure of claim 31 wherein the metallic film comprises [a metallic layer having Al as its principal constituent, or an alloy a layer containing] Al.

37. (Amended) A contact structure of claim 31 wherein the metallic film comprises [a metallic layer having W as its principal constituent, or an alloy layer containing] W.

38. (Amended) A contact structure of claim 31 wherein the metallic film is a lamination film formed of a W layer and [an alloy] a layer [containing] comprising W and N.

40. (Amended) A contact structure of claim 31 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide.

41. (Amended) A contact structure of claim 31 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide and indium oxide.

43. (Amended) A semiconductor device comprising:
a first substrate comprising a circuit comprising a thin film transistor;
a second substrate opposing said first substrate;
a connecting wiring comprising a metallic film and a transparent conductive film in contact with said metallic film for connecting said circuit to another circuit;
a column-shape spacer formed over said thin film transistor for maintaining a space between said first substrate and said second substrate; and

a [protecting] insulating film in contact with a side surface of said metallic film comprising the same material as that of the column-shape spacer,

wherein said connecting wiring, said column spacer, and said protecting film are formed over said first substrate,

wherein said [protecting] insulating film is formed along with the length direction and the width direction of said lamination film, and

wherein said connecting wiring has a taper shape.

45. (Amended) A contact structure of claim 43 wherein the [protecting] insulating film is a resin film.

47. (Amended) A contact structure of claim 43 wherein the metallic film comprises [a metallic layer having Al as its principal constituent, or an alloy a layer containing] Al.

48. (Amended) A contact structure of claim 43 wherein the metallic film comprises [a metallic layer having W as its principal constituent, or an alloy layer containing] W.

49. (Amended) A contact structure of claim 43 wherein the metallic film is a lamination film formed of a W layer and [an alloy] a layer [containing] comprising W and N.

51. (Amended) A contact structure of claim 43 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide.

52. (Amended) A contact structure of claim 43 wherein the transparent conductive film [is an alloy film containing] comprises zinc oxide and indium oxide.